ChatGPT Applications, Challenges, and Limitations:
A Case Study of Thai Generation Y

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Abstract

OpenAI's ChatGPT has gained significant attention worldwide for its potential to increase productivity and efficiency in tasks by allowing individuals to focus on more creative and non-repetitive activities. This study aims to explore the perceptions, potential applications, challenges, and limitations of ChatGPT for Thai Generation Y which is expected to play an important role in driving the economy. The data was gathered through in-depth interviews and analyzed using qualitative content analysis. The results indicate that ChatGPT has various potential applications for Generation Y in both personal and job-related aspects. However, challenges and limitations were also identified, such as accuracy, privacy, and ethical considerations. The findings of this research can assist businesses, organizations, and individuals in decision-making regarding the integration and use of ChatGPT in several contexts and would contribute to the advancement of ChatGPT technology or other language models in the Thai language.
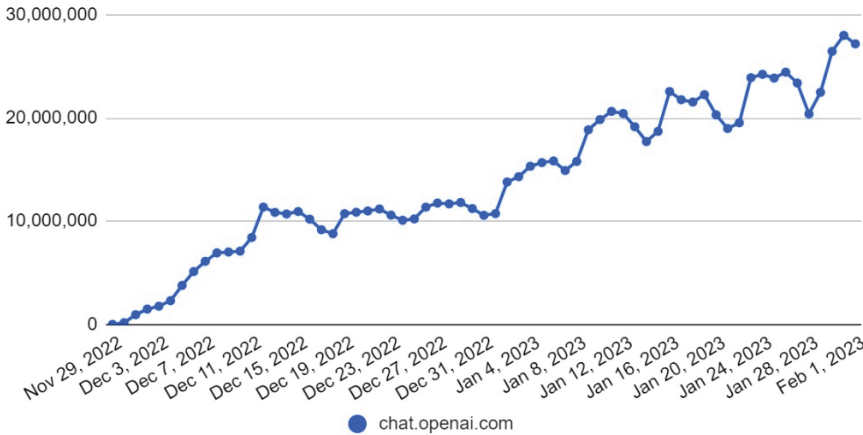
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INTRODUCTION

A prototype of OpenAI's ChatGPT, introduced in November 2022, has gained the attention of various groups, including engineers, social media users, business owners, authors, and students. (Haleem, Javaid, & Singh, 2022). ChatGPT has the potential to be applied in diverse domains such as chatbots, customer service, education, and research, among others. Its creation is based on the successful GPT series and serves as an illustration of the language models' potential in natural language processing and generation of conversations (Abdullah, Madain, & Jararweh, 2022).

According to Similarweb (Carr, 2023), the website chat.openai.com is estimated to have attracted around 25 million daily visitors in February 2023, as shown in Picture 1. Additionally, the user base of ChatGPT has reached 100 million, and the platform's growth continues to accelerate.

Picture 1: ChatGPT's growth rate

From Carr (2023)

In Thailand, the increasing popularity of ChatGPT has made it relevant to many generations, particularly Generation Y which is expected to have a significant impact on the job market and play a crucial role in driving the economy. Known for their tech-savviness and comfort with using digital technologies, Generation Y are likely to be early adopters of ChatGPT, offering unique perspectives on its potential applications, challenges, and limitations.

Therefore, the objective of this study is to investigate the various aspects of ChatGPT, including its benefits and drawbacks, specifically for Thai Generation Y. This study can provide valuable insights to assist businesses, organizations, and individuals in making decisions about the integration and use of ChatGPT in different contexts. Furthermore, the findings of this research can contribute to the advancement of ChatGPT technology in the Thai language, ultimately leading to its more widespread adoption in various industries.

CHATGPT

Overview

The evolution of AI algorithms, such as deep learning and reinforcement learning, has led to the development of specific algorithms like convolutional neural networks and recurrent neural networks. These algorithms have gained prominence for their ability to analyze images, audio, and unstructured data, including text mining and natural language processing. However, the lack of computational resources and data posed a challenge to real-world applications. To address this, newer models of AI, such as federated learning and tiny machine learning, were developed and adopted in industrial applications. Traditional chatbots used natural language processing (NLP) to respond to user queries by selecting the best possible response from available sets. To provide real-time feedback to customers, chatbots have now adopted language models and deep learning to address NLP issues. OpenAI's ChatGPT has extended chatbot capabilities by integrating deep learning and language models based on

the Generative Pre-Training Transformer (GPT) architecture. Language models predict the likelihood of human interaction sequences using generative and discriminative algorithms, often through deep learning and transformer neural networks (Dwivedi et al., 2023).

ChatGPT is a conversational AI designed to generate natural language conversations and answer questions by providing more context. It uses a Transformer architecture with an encoder-decoder and self-attention mechanism, making it effective at generating coherent conversational outputs. Reinforcement learning with human feedback is an additional layer of training that utilizes human feedback to help ChatGPT learn to follow commands and generate responses that meet human expectations. At present, ChatGPT is accessible online for free as a research preview, but not through the API. Despite this, it is user-friendly and readily available for use. To access the ChatGPT interface, users are required to provide basic information such as their email address, and the interface is similar to many popular chat applications (Abdullah et al., 2022).

Applications

ChatGPT is expected to positively impact productivity by automating routine tasks and enabling individuals to focus on creative and non-repetitive activities. The applications of ChatGPT are varied including knowledge work, human augmentation, banking, legal services, healthcare, tourism, hospitality, education, and academic research. In the banking, financial services, and insurance sectors, ChatGPT enhances accuracy in audit and advisory services, allowing executives to prioritize important tasks. It can also be used in text-mining legal databases, benefiting financial institutions navigating complex regulatory systems. ChatGPT's ability to extract relevant information quickly is valuable. In the legal sector, ChatGPT efficiently mines legal databases to provide advisory and support documents, significantly boosting productivity for individuals, regulators, and law firms (Dwivedi et al., 2023).

In healthcare, ChatGPT contributes to digital health initiatives by offering valuable assistance to medical and paramedic staff in primary healthcare centers, particularly in remote areas. Under the supervision of trained physicians, ChatGPT can offer valuable insights and support. Additionally, incorporating ChatGPT into healthcare training programs has the potential to reduce the time required for participants to learn and acquire necessary skills. For the hospitality and tourism industry, ChatGPT can be integrated as a website widget, enhancing the interactive interface for customers. It assists with travel, food, vehicles, and tourist locations, improving the customer experience and reducing manpower costs. In the field of education, ChatGPT positively impacts student productivity by making the learning process more efficient. Academic authors can also utilize ChatGPT to gather information and develop background sections or first drafts of papers (Dwivedi et al., 2023).

Challenges and limitations

There are various ethical considerations when it comes to the use of ChatGPT, including the potential for it to spread disinformation, the responsibility of those who use it, and the potential for it to perpetuate biases and stereotypes (Dwivedi et al., 2023). ChatGPT faces several limitations include providing untruthful and redundant responses, lacking the ability to request clarifications for ambiguous prompts, being sensitive to the expression of prompts, dealing with multimodality and computational capability, and conflicts between user intentions and laws (Gao et al., 2023). There is a concern that ChatGPT may replace human workers, particularly in jobs that were previously thought to be less likely to be automated, such as those involving decision-making, planning, or creative work (Dwivedi et al., 2023).
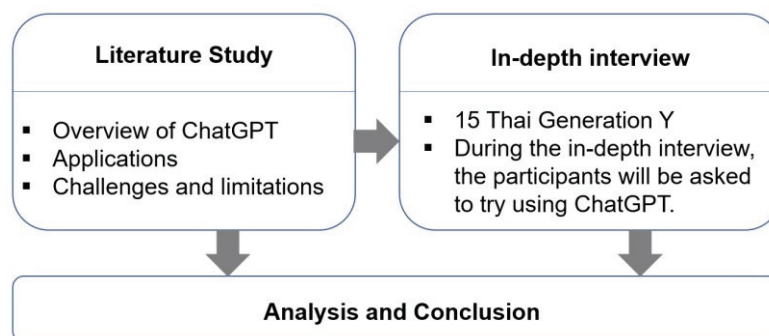
The use of ChatGPT for academic writing raises concerns about academic integrity, particularly with regards to potential plagiarism. There are also ethical concerns regarding ChatGPT, including the potential spread of disinformation and the responsibility of its users. The use of generative AI models like ChatGPT in education poses some challenges, including controlling plagiarism and cheating, evaluating assessments and exams, and ensuring fairness and impartiality. These challenges come with significant risks, such as copyright infringement, bias, and overreliance on the model, as well as difficulties in distinguishing between model-generated and student-generated responses. Additionally, the high cost of training and maintenance, data privacy and security concerns, and difficulty in verifying information and maintaining integrity are further issues to be addressed. ChatGPT's use may also negatively impact students' motivation to learn writing skills and language expression. Despite these concerns, some academic articles have already been co-authored with ChatGPT (Dwivedi et al., 2023; Eke, 2023; Kasneci et al., 2023).

Therefore, it is crucial to consider the ethical implications of using ChatGPT and to develop guidelines and policies that promote its responsible use (Dwivedi et al., 2023).

RESEARCH METHODOLOGY

The research process consists of three phases: literature study, data collection, and analysis & conclusion, as illustrated in Picture 2.

Picture 2: research process

The literature review phase examines the existing literature on the overview, applications, challenges, and limitations of ChatGPT. Data collection involves conducting in-depth interviews with 15 Thai Generation Y participants (aged 27 – 42) and with various backgrounds. The participants should have a bachelor's degree or above. During the interviews, the participants were asked if they were familiar with ChatGPT and were asked to try using ChatGPT. A series of open-ended questions were used to explore their experiences, opinions, and perceptions regarding the system's potential applications, benefits, and limitations. The collected data is then analyzed using qualitative content analysis to identify and categorize key themes and factors, and conclusions are drawn based on the findings.

RESULTS

The results of in-depth interview comprised Perceptions of ChatGPT, Applications of ChatGPT, and Challenges and limitations.

Perceptions of ChatGPT

Most interviewees have never tried using ChatGPT, but have heard of or become familiar with ChatGPT through the media. There are a few who have tried using ChatGPT to assist their work. After trying ChatGPT, many of the respondents stated that ChatGPT makes it easy to research various information, provides suggestions, and saves time by eliminating the need for typical search engine usage, especially when it comes to English. Based on the interview results, a few participants expressed their feelings towards ChatGPT, with some saying *"I am excited and curious about the way ChatGPT will respond to questions,"* while others mentioned *"I enjoy using ChatGPT every time,"* and *"I feel as if I have a friend nearby to assist in problem-solving, as ChatGPT is intelligent and can answer questions from multiple perspectives as well as summarizing text." "Unlike search engines, when asking ChatGPT, I received answers that did not require further processing."*

The majority found ChatGPT's UI is user-friendly and easy to use. One interviewee mentioned that *"it can be accessed easily by signing in with a Google account and is available for use on both smartphones and computers."* Only a small number of respondents mentioned that they found it difficult to use, and only a few mentioning its lack of aesthetic appeal.

Potential Applications

According to the interviewees, ChatGPT has potential for various applications such as assisting in writing product content, creating brochures, articles, and ads. Some individuals have also pointed out its usefulness in programming and coding. Moreover, others have highlighted its potential as a tool or an assistant in analyzing complex data, summarizing articles, developing businesses, proposing ideas and opinions for organizations, translating languages, and functioning as a chatbot for answering questions within a company. Furthermore, it has been suggested that integrating ChatGPT with existing packages or software can enhance efficiency.

Challenges and limitations of ChatGPT

According to the in-depth interviews, the challenges and limitations of ChatGPT include privacy and security concerns, ethical considerations, accuracy issues, pricing considerations, integration with existing systems, and other related factors. The details of each category are as follows.

Privacy and Security

The potential for ChatGPT to reveal personal identity during user chats raises concerns among interviewees. Some recommend implementing measures to control data leakage, particularly for sensitive data such as patient or medical decision-making information if ChatGPT is to analyze customers' personal data. They suggest that in the future, identity verification may be necessary before using the service, and the age of the user may need to be restricted for some content. Interviewees advise users to read the ChatGPT OpenAI policy before use and avoid sharing personal information.

Ethics

During interviews, participants raised concerns regarding ChatGPT's potential to promote or recommend specific businesses in response to questions related to business trends and investments, which could lead to risks. Additionally, some interviewees expressed their doubts about the ethical

implications of relying only on an AI system for business decisions. They address the possibility that ChatGPT may lack the required knowledge and understanding of ethics to make informed recommendations, leading to questionable outcomes. As a result, interviewees suggest that companies should exercise caution when integrating ChatGPT with existing business systems and should seek human expertise to validate ChatGPT's recommendations before making any significant decisions.

Accuracy

According to the interviews, some participants stated that they believe the data is mostly accurate because they have personally searched for it and found it to be consistent. However, others have expressed concerns that the data may not be up to date, as the updates are only available up to the year 2021, and there is occasional uncertainty about the system's accuracy. Additionally, the system's stability during periods of high usage is limited.

English is generally considered to be more accurate than Thai. When asked in Thai, Thai language processing and answering can be slower than in English. The sentence structure in Thai may also appear strange or unnatural compared to English. For example, when asking for a food menu, the English language may provide more detailed explanations about the type of food, ingredients, and seasoning, while the Thai language explanations may be somewhat distorted and not entirely relevant to the question. Additionally, spelling errors may occur in Thai language searches.

Another issue that was raised is that when searching for information related to Thailand with English keywords, the answers may provide foreign contexts, such as Amazon, which refers to a coffee shop in Thailand, but ChatGPT understands it as the Amazon company. If the question is in Thai, but with English keywords, the answer will be provided in English rather than Thai.

According to some interviewees, the accuracy of ChatGPT is a concern due to their training sources being unknown worldwide. This could result in potential inaccuracies in the content provided by the ChatGPT, as well as a lack of references for the information presented. Therefore, they recommend double-checking the information received from Chatbots to ensure its accuracy and reliability. While there may be some minor variations, ChatGPT is suitable for general information searches since it doesn't have any references. It should be noted that the answers provided may be limited in terms of comprehensiveness or scope.

In summary, most people agree that using ChatGPT in the English language can provide relatively accurate answers, but not in the Thai language. The results in Thai may not be comprehensive, cover a wide range of topics, or sound natural, and Thai language processing may be slower than English. Despite these limitations, there is optimism that the Thai language will continue to develop and improve in the future.

Price

According to the interviews, many of the respondents have tried using ChatGPT and were impressed with its potential to be helpful in work by providing convenience, saving time, and reducing errors. Consequently, they are open to paying a reasonable price for ChatGPT, on the condition that the system is continuously developed, especially for the Thai language. However, they emphasize the importance of considering the price and appropriateness and view it as a long-term investment. They are also willing

to pay for an updated database, but they suggest trying it for free before making any further decisions. Currently, only a few respondents stated that they are not willing to pay as it is not their primary tool, but they may consider it in the future.

Overall, most interviewees are willing to pay for ChatGPT, given that the price is reasonable and the features are continuously improved, which can lead to its effectiveness and faster performance.

Integration with Existing Systems

Some interviewees have expressed concerns about the integration of ChatGPT with existing business and organizational systems, citing potential issues such as compatibility and cost. They have raised concerns that integrating ChatGPT into existing systems could lead to significant investment and maintenance costs. Furthermore, there are concerns about how well ChatGPT will integrate with existing technologies and whether it will require specialized infrastructure or hardware. These concerns have led some interviewees to question whether the benefits of using ChatGPT in their business or organization outweigh the potential costs and risks associated with integration.

Others

Some participants emphasized the importance of prompt skills. This is because users may input prompts that result in AI-generated outputs that do not match human language, requiring Prompt Engineers to analyze and correct these issues to improve the AI's accuracy. Some interviewees suggest to seek additional sources of information and not rely only on ChatGPT.

CONCLUSION

This study presents the potential applications, challenges, and limitations of ChatGPT for individual Thai Generation Y. In-depth interviews were conducted with 15 participants. According to the findings, participants from Thai Generation Y shows a strong interest in utilizing ChatGPT as it has the potential to serve as a valuable tool across diverse domains such as writing, programming, data analysis, and customer service. Its user-friendly interface and ability to provide quick answers without the need for further processing make it appealing to many users. However, its accuracy in Thai language is not as reliable as in English, and some interviewees expressed concerns about its accuracy, privacy, and ethical considerations. The integration with existing systems could lead to additional costs, and users should be cautious when sharing personal information.

ChatGPT shows significant potential for enhancing productivity and efficiency, but its limitations and challenges should be taken into consideration. As the technology is still in the development stage, future research can focus on its evolution and integration with other tools to improve its potential applications. Additionally, it is important to investigate the accuracy of ChatGPT in the Thai language, address privacy and ethical considerations associated with its use, and develop strategies to mitigate potential risks. Furthermore, additional quantitative data could be collected to provide more concrete insights and complement the qualitative data.

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